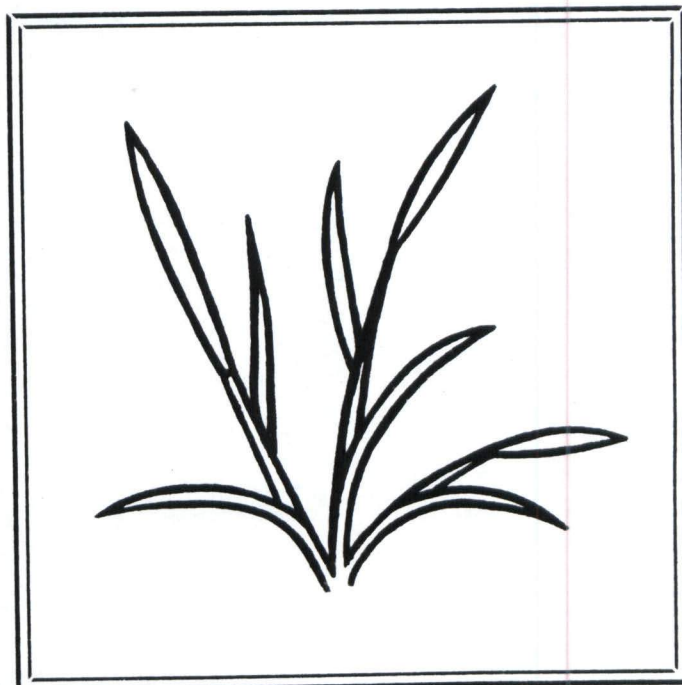
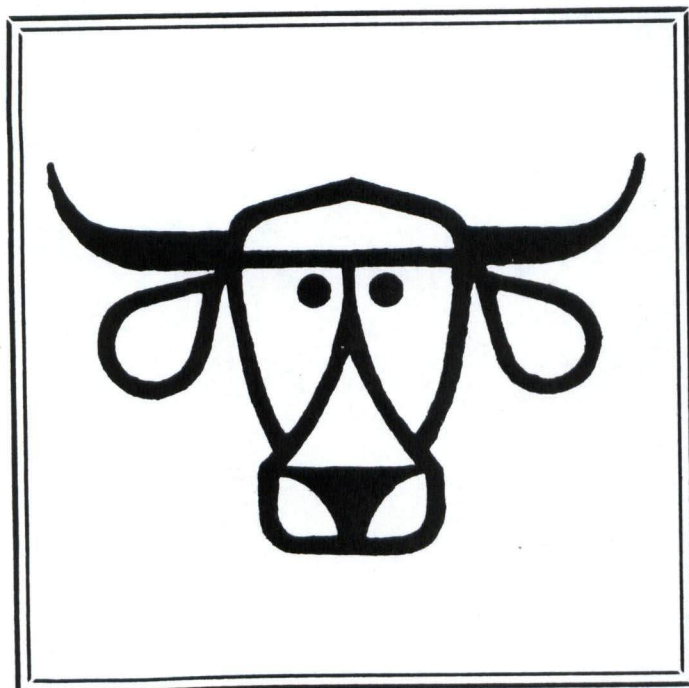
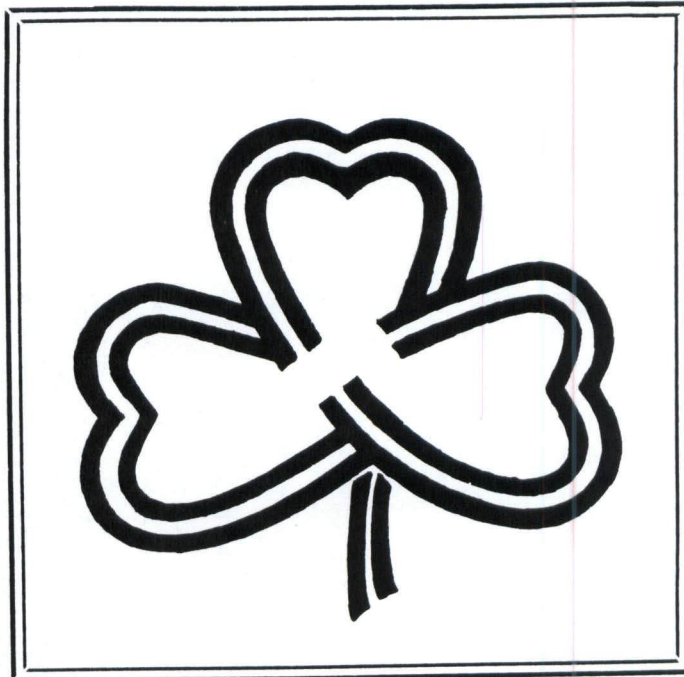


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Response of Experimental Bermudagrass Hybrids and
Cultivars to Defoliation Frequency
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ABSTRACT

Eight Oklahoma bermudagrass hybrids not previously tested in replicated plots were evaluated beginning in 1981. Harvests were made at 3, 6 and 9 weeks frequency or ages at harvest. At least two hybrids were equal to Coastal in dry matter production and followed approximately the same response pattern as Coastal to frequency of harvest.

INTRODUCTION

More than 80 bermudagrass hybrids developed by the Oklahoma Agricultural Experiment Station have been screened for growth characteristics and forage quality. In the continuing search for hybrids with an acceptable combination of forage quality, winter hardiness, sod density and productivity, the hybrids with the best apparent combinations of these characteristics were tested further in a quantified yield test.

MATERIALS AND METHODS

A test was sprigged in July 1979 involving eight previously untested Oklahoma hybrids, two limpograsses, four standard cultivars (Coastal, Tifton 44, Callie, and Brazos), and 72-77 (a Burton hybrid with superior forage quality). The limpograsses and one Oklahoma hybrid (71-x-11-15) did not become established. Because of weed competition in 1979 and an extended drought period in 1980, the experiment was not harvested until 1981. Main plots were 18 feet wide and 20 feet long surrounded by an 8-foot alley maintained free of vegetation chemically. Each main plot was divided into 3 subplots, each 6 x 20 feet, for harvesting at 3, 6 and 9-week intervals. The main plots were randomized within each of 4 replications. There were 7, 4 and 3 harvests, and 9, 5 and 4 harvests at 3, 6 and 9 weeks of age in 1981 and 1982, respectively. The plots were fertilized at the rate of 80-0-0 in early April and 60-0-0 about June 1 and August 1 each in 1981 and 1982. No irrigation water was applied either year.

RESULTS

Forage yield data for 1981 are shown in Table 1. Average yields ranged from less than 5 tons per acre to more than 7 tons per acre. There were at least four individual cultivar-age combinations that exceeded 8 tons per acre. Coastal had the highest yield though not significantly different to Brazos and three Oklahoma hybrids. In general less frequent harvesting results in increased production.

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KEY WORDS: Bermudagrass hybrids/yield/forage quality/harvest frequency.

However, in 1981 maximum yield was at the 6-week harvest frequency. Only one cultivar (LCB-11-13) had a higher yield at 6 weeks than at 9 weeks. Brazos showed less of a pattern with age than did not of the cultivars. Rainfall was very high in the spring and early summer of 1981 and harvests could not always be made on schedule. Thus, both the amount of rainfall and some lack of following the specified harvest schedule may have influenced the response to harvest frequency.

Forage yield data for 1982 are shown in Table 2. Average yields ranged from 3.4 tons to over 8 tons per acre. Brazos and Tifton 44 produced significantly less forage than Coastal, and Callie was the lowest yielding entry in the test. There was no difference in yield among the top 5 cultivars. LCB-11-6, the highest yielding cultivar in 1982 was the lowest yielding in 1981. LCB-6-18 was near the top both years and did not differ from Coastal in either year. Entry 72-77 performed very well in 1981 but was near the bottom in 1982. The yield of 72-77 in an earlier test was not outstanding but its quality was exceptional.

Yield increased with each increase in age at harvest in 1982. It is assumed that quality will decrease with advancing age. However, this study is being conducted, in part, to determine if all cultivars respond the same to advancing age.

Yields averaged across the two years are given in Table 3. There are two or three Oklahoma hybrids with average yields approximately equal to Coastal. Further evaluations based on quality, quality patterns, and sod density will determine whether they have any value.

Table 1. Forage yield of bermudagrass hybrids and cultivars out of different ages, 1981.

Cultivar	Age (weeks)			Average
	3	6	9	
	pounds dry forage per acre			
LCB-6-10	10,660	13,990	7,170	10,607 g ¹
LCB-6-18	13,000	16,165	12,940	14,035 abc
LCB-6-35	9,860	12,640	10,130	10,880 efg
LCB-11-6	7,940	11,290	9,660	9,630 g
LCB-11-13	9,000	10,630	12,280	10,640 fg
71-x-3-6	12,860	16,500	12,315	13,890 abc
72-77	12,030	14,075	12,750	12,950 bcd
Coastal	16,250	16,215	12,485	14,980 a
Callie	10,750	13,910	11,700	12,120 def
Tifton 44	12,430	14,070	10,960	12,490 cde
Brazos	14,690	14,560	13,620	14,290 ab
71-x-9-6	12,550	18,290	12,795	14,545 ab
Average	11,860 b	14,360 a	11,570 b	

¹ Average values in the same line or column followed by a common letter are not significantly different (P<0.05).

Table 2. Forage yield of bermudagrass hybrids and cultivars cut of different ages, 1982.

Cultivar	Age (weeks)			Average
	3	6	9	
	pounds dry forage per acre			
LCB-6-10	7,930	11,510	14,320	11,250 bc ¹
LCB-6-18	11,010	15,660	18,360	15,010 a
LCB-6-35	9,205	13,050	13,760	12,005 b
LCB-11-6	12,430	17,420	18,580	16,140 a
LCB-11-13	11,120	17,320	16,130	14,860 a
71-x-3-6	11,670	14,020	18,770	14,820 a
72-77	6,340	9,640	13,070	9,680 c
Coastal	13,770	16,700	16,560	15,680 a
Callie	5,775	6,930	7,490	6,730 d
Tifton 44	9,475	13,710	14,320	12,500 b
Brazos	8,590	12,120	15,650	12,120 b
71-x-9-6	8,840	13,630	14,870	12,450 b
Average	9,800 c	13,480 b	15,175 a	

¹ Average values in the same line or column followed by a common letter are not significantly different ($P < 0.05$).

Table 3. Forage yield of bermudagrass hybrids and cultivars cut of different ages, 1981-82.

Cultivar	Age (weeks)			Average
	3	6	9	
	pounds dry forage per acre			
LCB-6-10	9,295	12,750	10,745	10,930 de ¹
LCB-6-18	12,005	15,910	15,650	14,520 ab
LCB-3-35	9,530	12,845	11,945	11,440 cde
LCB-11-6	10,185	14,355	14,120	12,890 cde
LCB-11-13	10,060	13,975	14,155	12,730 cde
71-x-3-6	12,265	15,260	15,540	14,355 ab
72-77	9,185	11,860	12,910	11,320 cde
Coastal	15,010	16,460	14,520	15,330 a
Callie	8,260	10,420	9,595	9,425 e
Tifton 44	10,950	13,890	12,640	12,490 cde
Brazos	11,640	13,340	14,635	13,205 bed
71-x-9-6	10,695	15,960	13,830	13,495 bc
Average	10,760 b	13,990 a	13,360 a	

¹ Average values in the same line or column followed by a common letter are not significantly different ($P < 0.05$).